Date=08/09/2020
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Subject ⇒ System Design

IN PREVIOUS LECTURE **(QUICK RECAP) Date-07/02/2020**	**In Today's Lecture (Overview)**
⇒ What is Tcp and Udp ⇒ What is Dns ⇒ What is E-mail? ⇒ What is WWW?? ⇒ Web Architecture Of Web ⇒ Content Delivery Network ⇒ Mcqs ⇒ Questions for self Practice	What is System Design Inputs to System Design Outputs for System Design Types of System Design Mcqs Questions for the self practice

What is System Design

System design is the phase that bridges the gap between problem domain and the existing system in a manageable way. This phase focuses on the solution domain, i.e. *"how to implement?"*

It is the phase where the SRS document is converted into a format that can be implemented and decides how the system will operate.

In this phase, the complex activity of system development is divided into several smaller sub-activities, which coordinate with each other to achieve the main objective of system development.

Inputs to System Design

System design takes the following inputs −

- Statement of work

- Requirement determination plan
- Current situation analysis
- Proposed system requirements including a conceptual data model, modified DFDs, and Metadata (data about data).

Outputs for System Design

System design gives the following outputs −

- Infrastructure and organizational changes for the proposed system.
- A data schema, often a relational schema.
- Metadata to define the tables/files and columns/data-items.
- A function hierarchy diagram or web page map that graphically describes the program structure.
- Actual or pseudocode for each module in the program.
- A prototype for the proposed system.

Types of System Design

Logical Design

Logical design pertains to an abstract representation of the data flow, inputs, and outputs of the system. It describes the inputs (sources), outputs (destinations), databases (data stores), procedures (data flows) all in a format that meets the user requirements.

While preparing the logical design of a system, the system analyst specifies the user needs at a level of detail that virtually determines the information flow into and out of the system and the required data sources. Data flow diagram, E-R diagram modeling are used.

Physical Design

Physical design relates to the actual input and output processes of the system. It focuses on how data is entered into a system, verified, processed, and displayed as output.

It produces the working system by defining the design specification that specifies exactly what the candidate system does. It is concerned with user interface design, process design, and data design.

It consists of the following steps −

- Specifying the input/output media, designing the database, and specifying backup procedures.
- Planning system implementation.
- Devising a test and implementation plan, and specifying any new hardware and software.
- Updating costs, benefits, conversion dates, and system constraints.

Architectural Design

It is also known as high level design that focuses on the design of system architecture. It describes the structure and behavior of the system. It defines the structure and relationship between various modules of the system development process.

Detailed Design

It follows Architectural design and focuses on development of each module.

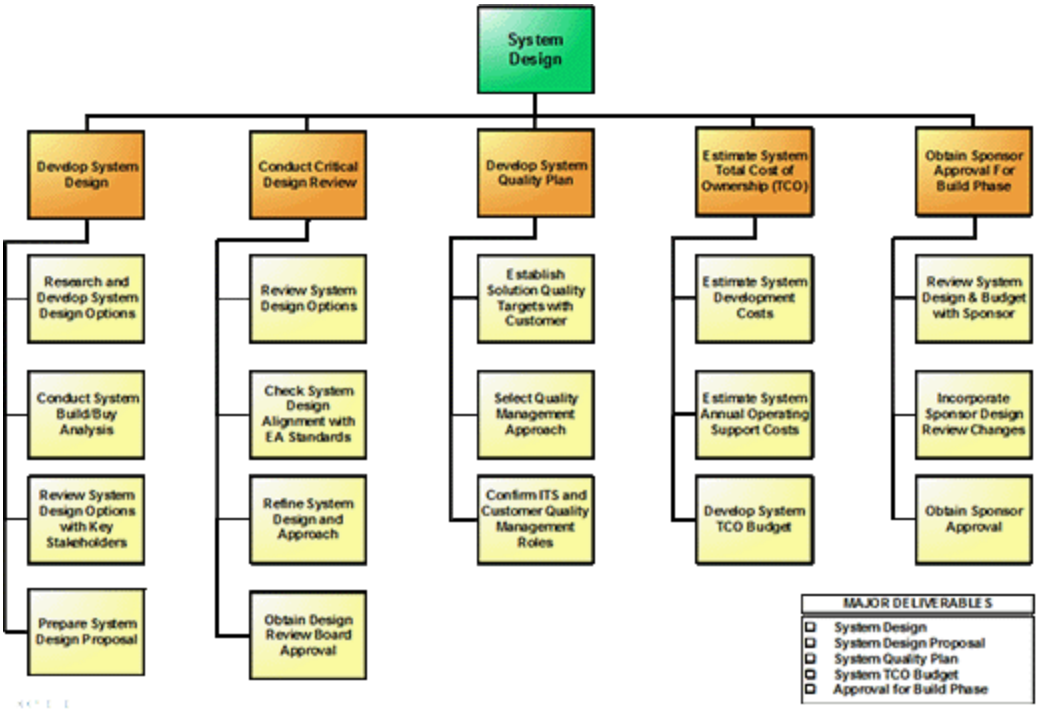
Conceptual Data Modeling

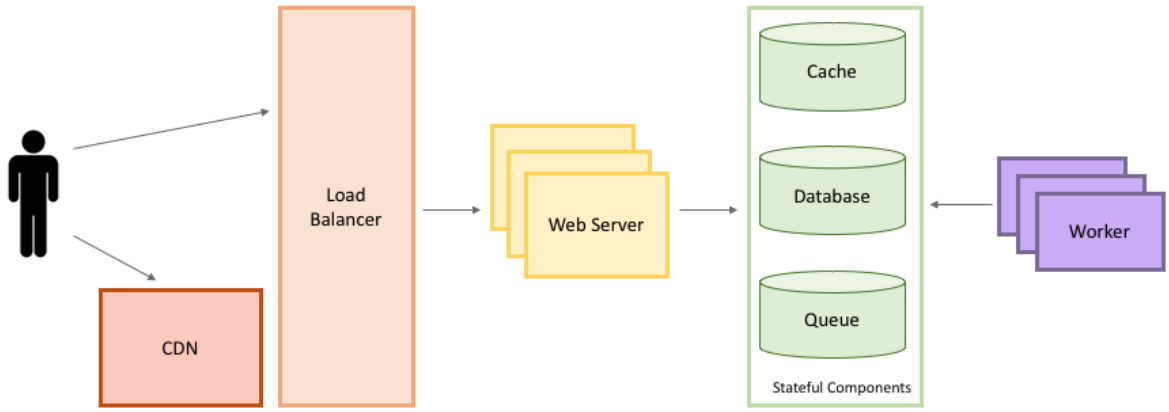
It is a representation of organizational data which includes all the major entities and relationships. System analysts develop a conceptual data model for the current system that supports the scope and requirement for the proposed system.

The main aim of conceptual data modeling is to capture as much meaning of data as possible. Most organizations today use conceptual data modeling using E-R model which uses special notation to represent as much meaning about data as possible.

Entity Relationship Model

It is a technique used in database design that helps describe the relationship between various entities of an organization.


System Design
Develop System Design
Research and Develop System Design Options
Conduct System Build/Buy Analysis
Review System Design Options with Key Stakeholders
Prepare System Design Proposal
Conduct Critical Design Review
Review System Design Options
Check System Design Alignment with EA Standards
Refine System Design and Approach
Obtain Design Review Board Approval
Develop System Quality Plan
Establish Solution Quality Targets with Customer
Select Quality Management Approach
Confirm ITS and Customer Quality Management Roles
Estimate System Total Cost of Ownership (TCO)
Estimate System Development Costs
Estimate System Annual Operating Support Costs
Develop System TCO Budget
Obtain Sponsor Approval For Build Phase
Review System Design & Budget with Sponsor
Incorporate Sponsor Design Review Changes
Obtain Sponsor Approval
MAJOR DELIVERABLES
System Design
System Design Proposal
System Quality Plan
System TCO Budget
Approval for Build Phase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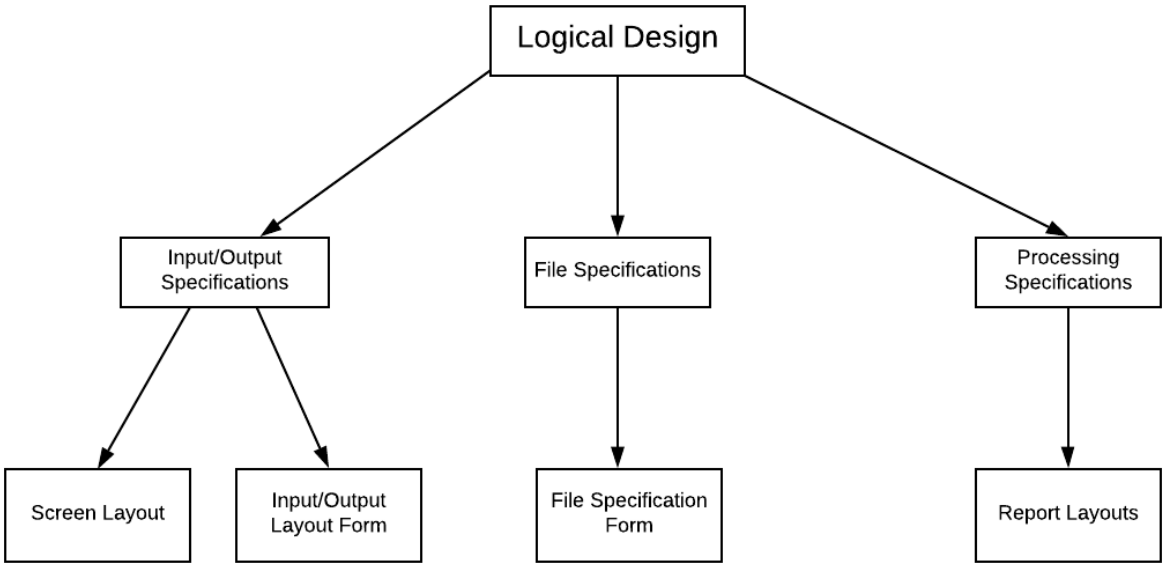
CDN
Web Server
Cache
Database
Queue
Stateful Components
Worker



Mcqs

1.Which of these factors are considered while in System Design

Performance

Maintenance

Scaling

2.Name any example of a NoSQL db

MongoDB

sqlite

Postgres

3.Which db to choose when you have a relationship between data?

RDBMS

NoSQL

4.Why study system design?

Helps you to code

To understand architecture

To make choices for your tech stack

Questions for the self practice

List down all the features of adb schema for a food delivery startup like Zomato/Swiggy